

Behavioral and Social Research Program

STTR and SBIR Grants

Award Mechanisms for Small Business Technology Transfer (STTR) Grants

- R41 – Small Business Technology Transfer Grant – Phase I
- R42 – Small Business Technology Transfer Grant – Phase II

Award Mechanisms for Small Business Innovation Research (SBIR) Grants

- R43 – Small Business Innovation Research Grant – Phase I
- R44 – Small Business Innovation Research Grant – Phase II

Grant: 1R41AG022751-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: BISCHOFF, BRIAN J MS
Title: Non-Intrusive Monitoring of High Functioning Elderly
Institution: RED WING TECHNOLOGIES, INC. MINNEAPOLIS, MN
Project Period: 2003/09/15-2004/02/29

DESCRIPTION (provided by applicant): Technological developments aimed at extending the ability of the elderly to live independently often target those people with a disability, chronic condition, or other reason requiring help with their care. A critical gap in current research, specifically addressed by this STTR program, is assistance technology for the population of persons over 65 years of age who are high-functioning and generally healthy, but are growing increasingly frail as they age and susceptible to an accident or illness becoming a disabling medical incident and eliminating their ability to live independently. Those living alone are at the most risk because their illness or injury may go unnoticed for a considerable length of time, turning a minor incident into a serious one. While this population could benefit from monitoring, its members are likely to be intolerant of intrusive monitoring because there is no clear medical need for it and the costs of a "just-in-case" home monitoring systems often outweigh the perceived benefits. To address these issues, this research observes that, in many cases, a concerned neighbor is often the first person to notice a problem simply by observing, in a non-intrusive manner, a large variation in a person's routine (e.g., lights not on when they should be) and taking appropriate action. This effort explores the hypothesis that a low-cost, non-intrusive home monitoring system can provide actionable information on the welfare of a home's occupant, i.e., an 'Electronic Concerned Neighbor'. The innovation that enables this are intelligent decision algorithms that can take simple sensor inputs and learn a person's routine, adapt to changes, detect significant variations, and take appropriate action (e.g., alert a care provider).

Grant: 1R42AG021844-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: SAHAI, ANIL K DO
Title: Medication Dispenser: MD2: Improving Health Outcomes
Institution: INTERACTIVE MEDICAL DEVELOPMENT, LC WEBSTER CITY, IA
Project Period: 2003/09/30-2004/08/31

DESCRIPTION (provided by investigator): The medication dispensing and monitoring system, MD 2, has been shown in preliminary studies to support a medication compliance rate of 98.5% The MD 2 was developed by Interactive Medical Developments LC to address issues of medicine non-compliance and the negative impact non-compliance has on the health and well being of the patient and the frustration of caregivers. It contacts caregivers when medications have not been picked-up and maintains a personal WEB site for each client tracking their history of medication compliance The MD 2 now also has a personal emergency response system. The need to improve medication management, among the frail elderly, via such technologic innovation as the MD 2 needs to be more formally studied through a randomized clinical trial to establish the benefits of having such a high compliance rate. Such strategies may offer increased support to the elderly with fewer human resources and a substantially reduced cost to the public health system. This needs to be documented through a randomized trial. This STTR Phase I study is to establish protocols and working relationships for a STTR Phase II study of the effectiveness of using an MD 2. The specific aims of this study focus on establishing Data Monitoring protocol, Safety Monitoring protocol, finalizing assessment tools and establishing good working collaborations between Interactive Medical Developments, LC, the University of Iowa Center on Aging and four Area Agencies on Aging.

Grant: 1R43AG019998-01A2
Program Director: STAHL, SIDNEY M.
Principal Investigator: BEDROSIAN, RICHARD C PHD
Title: Self-help Computer Services for Bereaved Elders
Institution: MYSELFHELP.COM, INC. NORTHBORO, MA
Project Period: 2003/08/01-2004/09/30

DESCRIPTION (provided by applicant): This SBIR Phase I project is intended to design and test the first prototype of an interactive self-help computer program and online support service for bereaved elders. The goal of the project is not only to aid seniors with the grief process, but also to reduce the risk of complicated bereavement, and to assist those who are experiencing such symptoms to obtain professional help in a timely manner. The prototype will be based on relevant research findings and clinical experiences pertinent to bereavement among the elderly. Each user will receive a customized learning experience, resulting in personalized feedback from the program. Focus groups and expert reviews of content and usability will provide assistance in the design process. The feasibility of the prototype and the online services will be tested in three stages with a sample of bereaved elders.

Grant: 1R43AG020870-01A1
Program Director: STAHL, SIDNEY M.
Principal Investigator: CALKINS, MARGARET P PHD
Title: An Assistive Wardrobe to Support Dressing Independence
Institution: IDEAS, INC. KIRTLAND, OH
Project Period: 2003/09/15-2004/02/29

DESCRIPTION (provided by investigator): The majority of individuals in long term care settings have significant and often severe limitations in their ability to complete basic activities of daily living (ADLs). MDS data indicate that over 80% of individuals in nursing homes are unable to dress independently with verbal prompts, and over 55% of individuals in assisted living also need assistance. Decreased ability to provide self-care has negative consequences on self-image, whereas increasing ability to complete ADLs independently supports more positive self-image and higher quality of life. The aim of this project is to develop a closet system/wardrobe that can be easily customized to support specific and common physical and cognitive disabilities of nursing home and assisted living residents. The basic hypothesis is that an adaptable wardrobe, designed to universal design principles, will increase independence in dressing in residents in long-term care settings with either physical or cognitive impairments. This in turn will decrease the amount of time staff needs to spend on assisting residents with dressing. The project will develop a prototype unit and test it in several assisted living facilities and nursing homes. Universal design principles are not routinely incorporated into the design of products such as wardrobes, despite substantial evidence of their efficacy. Features that do not need to be "learned" to use, such as a light colored interior, an interior light that automatically turns on and off, and door and drawer knobs that can be easily seen and used by someone with significant strength or range of motion impairments, would be included. Recognizing both the significant range and degree of physical and cognitive impairments of long term care residents, additional features will be designed as "add on" components, which can be tailored to the specific needs of an individual resident. Facilities are increasingly recognizing the importance of resident centered care practices, in which the specific needs and abilities of individual residents are considered when developing care plans. The physical environment, however, seldom provides opportunities to be customized for individual residents. This project would create a wardrobe that could be easily modified by nursing home staff, with little or no specialized training, to meet the unique needs of the residents.

Grant: 1R43AG021817-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: CALKINS, MARGARET P PHD
Title: Distance Learning for Home Modifications
Institution: IDEAS, INC. KIRTLAND, OH
Project Period: 2003/05/01-2003/11/30

DESCRIPTION (provided by applicant): The goal of this project is to develop and test the feasibility of a series of online educational modules that provide practical information on home modifications for older adults with sensory, mobility, physical and cognitive impairments. Modifying a home through remodeling, adding adaptive hardware, or changing the arrangement of objects is an important intervention strategy to manage chronic health care conditions, maintain or improve functioning, increase independence, ensure safety of frail older adults who experience functional limitations, and minimize the cost of personal care services. A major reason for the limited implementation of home modifications throughout the U.S. is not a lack of carpenters or construction people to implement the modifications, but rather the lack of individuals in social service agencies, particularly in non-urban areas, who have the knowledge to prescribe the appropriate modifications. Distance learning is an effective way to educate service providers to enable them to prescribe home modifications as part of a comprehensive, multi-dimensional strategy tailored to the specific needs of older adults. Phase I will involve the development and testing of a two-module course on home modifications to compensate for cognitive impairments, such as Alzheimer's disease and related dementias. Two separate course formats, synchronous (where a group of learners take the course during the same time frame, dialoguing with each other and the professor through a bulletin board) and asynchronous (where there is no interactive component but learners can take the course at any time) will be tested for both knowledge gain and learner preference. Phase II will develop and test the efficacy of several additional courses on home modifications for individuals with other conditions, such as sensory, functional or mobility impairments. Phase III will include an aggressive marketing plan to make the courses readily available to a broad range of social service agency personnel, contractors, and others engaged in home modifications.

Grant: 1R43AG022275-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: CALKINS, MARGARET P PHD
Title: Web-based Environmental Design Lexicon for Dementia care
Institution: IDEAS, INC. KIRTLAND, OH
Project Period: 2003/09/01-2004/02/29

DESCRIPTION (provided by applicant): This project will create a Web-based dementia design lexicon for designers and long-term care providers that provides a comprehensive assembly of design-related information which is: systematically organized, easily searchable, linked with potential outcomes (resident, staff, family, and organization), and weighted for confidence in the impact/outcome. This project builds on a previously funded project, which has developed the basic content of the lexicon. The genesis of this project stems from the inadequacy of psychological, social and medical research to inform design decision-making. The physical environment has a significant impact on how care is organized, determining everything from the size of groups residents find themselves in for meals and activities to the people they interact (or don't interact) with, to basic care issues such as the ability to maintain continence. However, the greatest impact of gerontological research upon design has been at a global level of abstraction--getting designers to think in terms such as "legibility," "sensory stimulation," and "autonomy." Yet designers are then required to take a "leap of faith," in their decision-making as to what design decisions would forward such goals as "maximizing autonomy." These decisions are often based upon design industry folklore or reasoning by analogy. Thus individuals in long-term care settings, and particularly people with dementia, who comprise between 50 and 80% of all nursing home residents, may be forced to live in settings that are not supportive of their needs and abilities. This project would address these current limitations by creating a highly accessible, research-based, comprehensive database that weights information as being 1) research-based, 2) reflecting the consensus of a group of dementia design experts, or 3) anecdote and without evidence. Phase I of this project has three specific aims. Aim #1 is to translate a portion of the significant amount of information generated through the Alzheimer's Association grant into a database format that reflects the relational structure necessary to make the ultimate product both comprehensive and useable to the end-users. Aim #2 will be to pilot test the database on a sample of potential users (both designers and long-term care clinicians) to ensure it is easily navigated and understandable. If the resulting product is so complex customers find it too difficult to use, it will not be successful. Aim #3 will be to evaluate the efficacy of the database as an informational tool. Ultimately, the goal is that the lexicon will be used to create supportive environments for people with dementia. Phase II will format the rest of the lexicon information into the database, translate it into a user-friendly Web-based resource, and again test its utility in informing the design process. Phase III includes final product development and market penetration plans.

Grant: 1R43AG022761-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: CLARK, D JOSEPH PHD
Title: Understanding Aging Curriculum Modules
Institution: VIDEODISCOVERY, INC. SEATTLE, WA
Project Period: 2003/09/01-2004/02/29

DESCRIPTION (provided by applicant): The aging of the American population is emerging as one of the most profound public health and social issues that students today will face. The field of aging presents a excellent opportunity for interdisciplinary research and problem solving as it combines disciplines of cell biology, genetics, neuroscience, health, epidemiology, and social issues. There is a dearth of educational programs that focus on aging for the general public and an almost complete lack of inclusion of the topic in general science and health textbooks, and in the national science and health standards. Videodiscovery proposes to develop Understanding Aging, a series of multidisciplinary educational modules dealing with the biological and social aspects of aging that can be integrated into the high school and undergraduate college curriculum. The Videodiscovery Digital Library (VDL TM) is an online instructional delivery system consisting of 30,000 images and movies with associated descriptive text, lessons and retrieval software. This unique resource offers teachers and students a comprehensive, high quality, highly organized science media collection that can improve science learning at all levels. In addition to the image retrieval and curriculum module investigatoring software there is fully integrated assessment engine that administers and scores interactive video tests that are tied to educational objectives. The subscription based- VDL is delivered on a dedicated server located at each site or by a centrally hosted server. During Phase I funding, a set of prototype modules will be developed and tested at the upper high school and undergraduate level. During Phase II, a complete educational program will be developed that will integrate aging topics throughout the science curriculum. This will prepare individuals to anticipate and prepare for the aging process in themselves and family members. It will also stimulate interest in young people in pursuing research or health service careers that focus on aging. Understanding Aging materials will be distributed as part of the VDL and as a stand-alone DVD ROM.

Grant: 1R43AG021344-01A1
Program Director: STAHL, SIDNEY M.
Principal Investigator: HARRIS, CATHERINE M PHD
Title: Translating Dementia Care Research Online: Communication
Institution: DEMENTIA CARE DESIGN INTERNATIONAL SAN ANTONIO, TX
Project Period: 2003/06/15-2004/05/31

DESCRIPTION (provided by investigator): Communication necessary to carry out life's activities is impaired early in the course of dementia and requires specialized knowledge and skill of those who provide care. The goal of this application is to develop a prototype program and training module for Interactive Internet dissemination that TRANSLATES the best of COMMUNICATION IN DEMENTIA CARE research into concepts and terms that care managers and caregivers can understand, adopt, and consistently apply in the care setting. In the process, an ON-LINE system will be created, that harnesses the collaborative technology of the Internet, linking researcher, caregiver, and manager in the development, dissemination, and evaluation of dementia care materials. The prototype communication module will be generated in consultation with nationally recognized experts in dementia care through: 1) prioritizing the most important issues in communication in dementia care; 2) identifying critical dementia care research to support the teaching; 3) developing a teaching plan that explains the care approaches and incorporates adult learning principles, while maintaining the integrity of the research; 4) creating user-friendly interactive Internet versions of the module with the potential for self-evaluation and feedback to researcher's and program developers; and 5) recreating the prototype module in Spanish and Navajo language and culture.

Grant: 1R43AG021335-01A1
Program Director: STAHL, SIDNEY M.
Principal Investigator: HENDRICKSON, BRUCE
Title: Development of a Friction Drive Inclined Platform Lift
Institution: HANDI-CABINETS ETC., INC. KINDRED, ND
Project Period: 2003/09/30-2004/08/31

DESCRIPTION (provided by applicant): A feasibility study for the development of a friction drive inclined platform lift will be conducted. The proposed approach will utilize a twenty-year old design that was never sold commercially due to cost ineffectiveness, and nonconformance to safety regulations. This project's main technical innovation will be to replace the major cost component of the twenty-year old lift, the steel rack and pinion drive, with a low cost friction drive. The friction drive is expected to cost close to one tenth that of the current rack and pinion drive for materials, machining, and installation. In addition, the lift is not currently designed to meet commercial safety regulations. In order to meet these regulations, several technical design changes will need to be made. The costs of each of these design changes will result in a final cost estimate that will be used to determine overall cost feasibility. These design changes, along with replacing the rack and pinion drive, will lead to an initial prototype design ready for phase two, Product Development and Testing.

Grant: 1R43AG021855-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: LANTZ, PENELOPE A JD
Title: MULTIMEDIA LONG-TERM CARE RESOURCE
Institution: HEALTH MEDIA LAB, INC. WASHINGTON, DC
Project Period: 2003/05/01-2003/10/31

DESCRIPTION (provided by investigator): The long-term goal of this project is to develop and evaluate through focus group discussions and questionnaire survey data, a multimedia resource designed to help individuals and caregivers of individuals navigate through the maze of intricacies associated with long-term care planning, and to help them make informed decisions about long-term care options including, type of care, source of care, and how to pay for care. This resource will include a CD-ROM with tutorials, worksheets, common applications, and legal forms; a toll-free telephone helpline staffed by experienced long-term care counselors; and Website resources from Health Media Lab's long-term care Website section, plus links to other Internet resources. We envision the information provided by each of these media as overlapping, although each has its own advantages. For instance, the telephone helpline will offer personalized, one-on-one help. The Website will have tutorials, printable worksheets, links to other resources, and will be updated frequently. The CD-ROM can have much of the same information and tools as the Website, but may be easier to use for people without high speed Internet access. This multimedia resource will be for use by individuals and couples who want to plan for their long-term care, adult children of elderly parents who are caregivers or who monitor care, and spouses, friends, relatives and others who provide care to elders. It will also be useful for professionals, including employee benefits coordinators, public health, medical and nursing personnel, elder care lawyers and others who provide legal assistance, insurance companies, social workers and other senior service providers, and elder care volunteers who assist in educating caregivers about long-term care options. It will help users understand and utilize (or help others to utilize) health insurance, health care, legal and financial issues, medicare and medicaid, and other long-term care issues for seniors.

Grant: 1R43AG022268-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: MCARTHUR, LYNNE MA
Title: Medicare Education and Decision Support Tools
Institution: JOHNSON, BASSIN AND SHAW, INC. SILVER SPRING, MD
Project Period: 2003/08/01-2004/01/31

DESCRIPTION (provided by applicant): Who will care for aging baby boomers? They will likely have to do it themselves. The need to educate boomers about the extent of the problems they will face in obtaining affordable health insurance and assisted-living services is abundantly clear. To date, boomers have tended to "turn a blind eye" to these issues, partly out of ignorance and partly out of denial that they will ever need these services. Medicare, Medigap, M+C, Medicaid, and private health insurance eligibility, enrollment, disenrollments, coverage, and costs have become a maze of complexity. Government sources of information are inadequate and often not sought until a crisis occurs. Our firm, JBS, runs the Centers for Medicare and Medicaid Services' national resource center in support of all state health insurance and counseling programs. We believe that the private sector can develop some informational products that will better enable boomers to plan for and use long-term health insurance options. The proposed products are CD-based interactive software, a "Medicare Game," a Dummies-type book that would make Medicare understandable, a toolkit for retirement planners and human resources professionals, and a Web site. Our SBIR goals are to develop prototype products, assess interest of likely distributors, and evaluate commercial viability.

Grant: 1R43AG022255-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: MURPHY, NHORA B BA
Title: El ejercicio y su Salud: Nunca es Tarde Para Empezar
Institution: MEDIA NETWORK SILVER SPRING, MD
Project Period: 2003/09/01-2004/08/31

DESCRIPTION (provided by investigator): Advances in diagnosis and treatment outcomes of major medical conditions have increased life expectancy and the average number of years lived without a limiting disease or disability. There exists, however, a marked disparity in the active life expectancy and quality of life among different racial and ethnic groups. To support the National Institutes on Aging (NIA) in its efforts to better address the disparities in the "active life expectancy" of older Hispanics, The Media Network, Inc. is to research, develop, produce, evaluate, and distribute a Spanish-language exercise videotape, trainer's manual and poster for widespread use among older Hispanics. In Phase 1, the principal investigator will conduct formative research and testing to evaluate concepts on the program's safety, cultural and social acceptability and effectiveness. The product will largely be based on the Spanish-language exercise guide titled "El Ejercicio Y Su Salud." The exercise guide was produced by The Media Network in conjunction with NIA and was awarded First Place in the Blue Pencil/Gold Screen Competition sponsored by the National Association of Government Communicators. In Phase 2, The Media Network, Inc. will professionally produce the videotape of a unique Spanish-language exercise program and create accompanying training materials. In Phase 3, the videotape will be marketed, and distributed for community use by older Hispanics. Accompanying promotional and training materials will be created and by using its extensive network of community-based Hispanic groups, The Media Network will also promote and distribute the video. The final component of the project will be an evaluation of the campaign and product's effectiveness. Completion of the tasks outlined in this application will result in a professionally produced and field-tested Spanish-language exercise program designed for older Hispanics. Improving health behaviors and health maintenance strategies with culturally competent and appropriate educational materials can only be achieved through effective, safe, and enjoyable programs that are widely available and marketed to the aging Hispanic population. The final product will fill a critical void in exercise training products targeting Hispanics and has the potential of achieving a comprehensive and beneficial impact on the overall fitness of the older Hispanic community in the US.

Grant: 1R43AG020464-01A1
Program Director: STAHL, SIDNEY M.
Principal Investigator: NEMES, SUSANNA PHD
Title: Training Health Care Providers on Senior Substance Abuse
Institution: DANYA INTERNATIONAL, INC. SILVER SPRING, MD
Project Period: 2003/06/15-2004/05/31

DESCRIPTION (provided by applicant): The Substance Abuse and Mental Health Services Administration and the American Medical Association suggest that there is an epidemic of alcohol abuse among the elderly. Since the number of elderly using home healthcare is a rapidly growing, it is important for home health care professionals to be aware of alcohol use by their patients and of the potential negative effects of this use. The goal of the proposed Phase I SBIR Project is to develop an integrated, interactive, multimedia nursing continuing education (CE) course (Alcohol Use and Abuse in the Elderly) add screening instrument (Elderscreen) to provide home healthcare nurses with knowledge, tools, and skills to assess their senior patients for alcohol use/abuse and make appropriate referrals. To maintain their licensing, nurses in many states are required to take CE credits, which gives this product great commercial potential. In Phase I, Danya proposes to develop the online nursing CE course with accompanying screening instrument and Alcohol Fact sheets. The online nursing CE course will undergo a pre-test/post-test feasibility pilot test evaluation during Phase I. In Phase II, we will develop supplemental materials to the course including a Case Study Video and Online Resource Center Website, and a full-scale evaluation of the online nursing CE course will be conducted.

Grant: 1R43AG022252-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: NIXON, KENNETH R MS
Title: Internet-based Alzheimer's Caregiver Support System
Institution: COMPUTATIONAL GEOSCIENCES, INC. NORMAN, OK
Project Period: 2003/09/30-2004/03/30

DESCRIPTION (provided by investigator): The long-term objective of Small Business Innovative Research Phase I is to develop an Internet based Alzheimer's Caregiver Support System (iACSS). The iACSS would enable care to be provided remotely to individuals with Alzheimer's disease over the Internet. iACSS would feature a videoconferencing capability to communicate and monitor the Alzheimer's patient and their environment. The objectives of the system are to improve the quality of care of Alzheimer's patients, reduce caregiver support costs and disruption to daily routine, and allow the person with Alzheimer's to remain independent as long as possible. An experimental prototype of iACSS will be developed to demonstrate the concept and functional capability of the system. Caregiver support groups will be used to develop the functional requirements of the system and define caregiver intervention strategies in a long-distance paradigm. In-home experiments will be conducted using the iACSS prototype to allow caregivers first-hand use and evaluation of the system and to identify the Alzheimer's patient and caregiver characteristics of where the system can and cannot be used effectively. The research will also evaluate the use of the iACSS to deliver professional health care to Alzheimer's patients, in both suburban and rural areas.

Grant: 1R43AG021860-01A1
Program Director: ELIAS, JEFFREY W.
Principal Investigator: RAGER, ROBERT BA
Title: CD Attention Trainer Improves Older Adults Memory
Institution: COMPACT DISC, INC. SILVER SPRING, MD
Project Period: 2003/09/01-2004/08/31

DESCRIPTION (provided by applicant): Increasing the ability of older adults to live independently is a growing public health priority. Because age-related memory declines intimate risk of dependency, older adults are concerned about their ability to remember information and events of a few hours ago and acts performed even a few moments ago. We propose an innovative CD-ROM/Web Attention Trainer to improve three basic aspects of attention, i.e., coordinating, allocating, and focusing, relevant to everyday cognitive function of community-residing elderly. Memory theories pose a central role for attention in guiding the initial encoding and later retrieval of to-be-learned information, and deficits in attention, rather than in retrieval, may undermine the elderly's everyday memory functioning. Enhancing basic attention components will help mitigate against many everyday cognitive complaints of the elderly when running multiple errands such as medication regimen compliance and keeping physician appointments which place heavy demands on coordinating, allocating and focusing attention. The proposed intervention holds promise for older adults in bolstering their attentional skills including the encoding of new information into memory and remembering habitual acts. The program, designed to be comfortable, entertaining, and engaging, will equip elderly adults with skills to: maintain and increase attentional skills; to improve perceived efficacy for successfully completing everyday tasks with heavy attention demands; and to monitor the effects of increased attentional function on everyday cognition, memory, and performance. Phase I aims to design, develop and field test a prototype CD-ROM program called ATTENTION TRAINER to help increase and monitor changes in the three basic components of attention, and their effects on cognition and memory more broadly. Phase II will fully develop the Attention Training CD and Web program to meet the everyday cognitive needs of elderly across a spectrum of demographic variables.

Grant: 1R43AG022271-01
Program Director: STAHL, SIDNEY M.
Principal Investigator: RAPCHAK, BARBARA A BS
Title: Emedonline: Telemedicine Medication Management System
Institution: LEAP OF FAITH TECHNOLOGIES, INC. CRYSTAL LAKE, IL
Project Period: 2003/08/01-2004/07/31

DESCRIPTION (provided by investigator): Medication non-compliance is estimated to cost the US healthcare system an estimated \$76.6 billion a year. Approximately 10% of hospital admissions are related to medication issues, costing up to \$50 billion annually. Understanding the causes of noncompliance and identifying methods to help patients follow their regimens may improve health outcomes and reduce related costs. We propose to determine whether a medication management system improves compliance among elderly patients being treated for hypertension. The medication management system, called Emedonline, uses standard cellular phone technology to call patients at programmed intervals, gives voice, text, and graphic instructions for taking prescribed medications, and dispenses the medications. It focuses specifically on modifying social interaction factors and providing a tool to enhance the administration process. We have identified three key objectives toward achieving Phase I and Phase II goals: 1. Develop Emedonline to facilitate prescribing medication regimens for healthcare providers, and facilitate medication compliance for patients. 2. Assess the acceptability of the service among healthcare providers, pharmacists, and patients. 3. Evaluate effects on medication compliance, perceived social support, and feelings of control over health destiny. During Phase I, we will examine requirements through focus groups with a sample of healthcare providers, pharmacists, and patients; develop a prototype of the Emedonline system; conduct a concept test with the sample; and create detailed specifications for Phase II development.

Grant: 1R43AG022284-01
Program Director: ELIAS, JEFFREY W.
Principal Investigator: SEVERSON, JOAN M BA
Title: Virtual Environment Tools for Assessing Fitness to Drive
Institution: DIGITAL ARTEFACTS, LLC IOWA CITY, IA
Project Period: 2003/09/30-2005/01/31

DESCRIPTION (provided by applicant): Automobile crashes pose a serious public health problem, and drivers with aging and age-related neurological and medical disorders are at increased risk for crashes due to cognitive impairment. Specific effects of cognitive disorders that increase the risk of driver crashes, such as impaired decision-making, can be assessed safely and in detail, under standardized, controlled circumstances in a virtual environment. The long-term objective of this project is to develop low-cost PC-based virtual environment software for assessing fitness-to-drive of cognitively impaired licensed drivers. The investigators draw from multidisciplinary expertise in computer science, neuroergonomics, and public policy. The proposed software product comprises an innovative suite of tools for testing cognitive functions related to the ability to perform driving-related tasks. The graphical component of the software uses a non-photorealistic representation of 3D virtual space and provides rich visual and pictorial motion cues on a standard computer screen without the cost and potential discomfort associated with simulations implemented on large "immersive" displays. Specific candidate scenarios implemented are theory-based and aimed at localizing cognitive errors in the driving task. The work of SBIR Phase I will include research, implementation, and experimentation that will demonstrate feasibility of the long-term objective. Specific Phase I work includes: (1) Create two proof-of-concept software tests: for Go/No-Go decision making, and for susceptibility to distractions ("mudsplashes"); (2) Conduct clinical evaluations of the tests in neurologically normal and cognitively impaired licensed drivers; (3) Determine an appropriate candidate test set for the full suite, to be prototyped, refined, and fully assessed in Phase II. The suite of tools will ultimately address critical aspects of the driving task including navigation, sign/landmark recognition, intersection and rear-end collision avoidance, and multitasking. The suite of tools is expected to be more flexible and cost effective than currently available driving simulator tools and more effective at predicting fitness-to-drive than standard ("paper and pencil") neuropsychological tests. The resulting virtual environment software tools could benefit society by providing accurate, fair, affordable and accessible tools for evaluating drivers with defects in cognitive abilities that are critical to safe automobile driving.

Grant: 1R43AG020895-01A2
Program Director: STAHL, SIDNEY M.
Principal Investigator: STERNS, RONNI S PHD
Title: Midlife Video Programming for Students and Professionals
Institution: CREATIVE ACTION, INC. AKRON, OH
Project Period: 2003/09/15-2004/08/31

DESCRIPTION (provided by applicant): Educators in the field of aging report a lack of multimedia on midlife. They express a desire for videos on select topics faced by the rapidly growing numbers of midlife adults. New research on midlife reveals that lifestyle choices made in the middle years determine health and vitality in old age (Rowe and Kahn, 1998). Creative Action Inc. plans to develop, produce, and market an innovative series of videos and lesson guides to educators and professionals who teach about midlife in college/university and professional settings. The videos will incorporate cutting edge research to portray key issues and solutions to problems confronting people in their middle years. The proposed product is designed to increase knowledge of midlife as well as to equip current and future professionals to provide information and potential solutions to their clients/patients. During Phase I, a panel of midlife experts will select three topics to be developed into storyboards that will be evaluated by educators and professionals in focus groups. One topic will be developed into a prototype video, which will be tested in classroom and agency settings for engagement, information, relevancy, usefulness, and elicitation of empathy. Results of Phase I research will guide product refinement and the development of additional videos in Phase II. Phase II research will lead to video refinements and development of additional videos for Phase III commercialization.

Grant: 1R43AG022260-01
Program Director: ELIAS, JEFFREY W.
Principal Investigator: STERNS, RONNI S PHD
Title: Care Environment English for Non-English Speaking Staff
Institution: CREATIVE ACTION, INC. AKRON, OH
Project Period: 2003/06/15-2004/05/31

Market potential exists for on-site job training in long-term care (TLC) to help non-English-speaking indirect care dietary, housekeeping, and maintenance staff learn English for the work setting. Creative Action Inc, plans to develop and market the "Care Environment English (CEE) Program for non-English-Speaking Staff" in indirect care positions. Targeted to the LTC industry, the CEE Program will immediately improve the indirect care worker's communication with supervisors, other workers, and residents and will later enable advancement to better-paying positions within the facility. The CEE Program will consist of innovative learning materials with a learning station for self-paced practice, easy-to-use portable materials with phonetic transliteration in Spanish of English words for on-the-spot speaking and a curriculum for weekly training classes in "Care Environment English," and cultural competency. Phase I research and development will create prototypes and test the feasibility of the program curriculum, materials and components for use with Spanish-speaking workers. A counter-balanced control group design will be used. Guided by Phase I results, Phase II research will develop refined prototypes, expand use for other foreign languages, and extend technology to PDA-based language software and DVD multi-media materials. During Phase II, CEE curriculum, materials, and components will be finalized for commercialization in Phase III.

Grant: 1R43AG022734-01
Program Director: PATMIOS, GEORGEANNE
Principal Investigator: WANG, ZHENGLIAN PHD
Title: Demographic Tool & Database for Households Forecasting
Institution: HOUSEHOLD AND CONSUMPTION CHAPEL HILL, NC
FORECASTING, I
Project Period: 2003/09/30-2004/08/31

DESCRIPTION (provided by applicant): Our new method for household forecasting, known as ProFamy, has substantial merits as compared to the classic headship-rate method, which is not linked to demographic rates, projects a few household types only without size information, and deals with household "heads" but not other household members. ProFamy uses demographic rates as input and forecasts much more detailed household types and sizes, and living arrangements for all members of the population. We will develop the ProFamy method/program into widely-applicable, user-friendly, and commercialized software, and develop an associated database. The Software and database are useful for business and policy analysis on elderly long-term care needs, housing, energy, cars, durable goods and other home-related products and services, and for faculty and students as a research/teaching tool. To develop the database for non-demographers to conveniently perform households and consumption forecasting, we will establish the model standard schedules of race-sex-age-specific marital status transitions rates and race-age-parity-specific rates of marital and non-marital fertility. The database also includes time series of summary measures of demographic rates, elderly long-term care needs and household consumption. As an illustrative application, we will perform U.S. household forecasting (2000-2050) by race, with a focus on elderly living arrangement and long-term care needs assessment.

Grant: 2R44AG018675-02
Program Director: ELIAS, JEFFREY W.
Principal Investigator: ALLEN, R WADE MS
Title: Procedures for Testing Older Driving Capabilities
Institution: SYSTEMS TECHNOLOGY, INC. HAWTHORNE, CA
Project Period: 2000/06/15-2005/08/31

DESCRIPTION (provided by applicant): The primary objective of this proposed project is to develop a low-cost driving simulator that can be used for screening and potentially retraining the psychomotor, attentional and cognitive skills of older drivers. This development will build on an already existing device that has been used to assess driver behavior impaired by alcohol and fatigue and to train novice drivers. The simulation device is intended to have well developed and sensitive measurement paradigms for assessing psychomotor, attentional and cognitive skills, which have been developed in prior research. The motivation for this development is the growing concern for improving the safety and mobility of older drivers. The basic hardware and software technology for a low cost driving simulation has already been developed and found to be sensitive to driver age. A Phase I feasibility study has shown that efficient test procedures can result in sensitive detection of age impaired driving skills. In this Phase II SBIR project we propose to: 1) further refine the simulator physical format and the driving scenarios and measurement paradigms to assess the psychomotor, attentional and cognitive skills of drivers in critical road and traffic situations; 2) conduct a large study with middle aged and older driver groups to validate the expanded simulation capabilities for screening and training the safety related skills of older drivers.

Grant: 5R44AG020052-03

Program Director: STAHL, SIDNEY M.

Principal Investigator: BORENSTEIN, MICHAEL T PHD GEN/EXP
PSYCH:GEN/EXPER PSYCHOL-
UNSPEC

Title: PUBLICATION BIAS IN META ANALYSES FOR MENTAL HEALTH

Institution: BIOSTATISTICAL PROGRAMMING, INC. ENGLEWOOD, NJ

Project Period: 2001/06/05-2004/03/31

DESCRIPTION (Applicant's abstract): The goal of this project is to develop software to address publication bias in meta analysis. The software will incorporate various computational approaches including procedures that focus on the presence of bias, others that yield an adjusted effect size, and others that address the robustness of the conclusions. These procedures will be integrated with graphical approaches, so that it is clear why bias appears to exist and how adjustments to effect size are being made. These procedures are meant to be applied as a key component of any meta analysis, to assess the likely impact of publication bias on the conclusions. When the impact is severe, this information will allow the researcher to avoid potentially serious consequences. When the impact is modest or trivial, this information is also critically important as it speaks to the validity of the analysis and should be reported as a key part of the results. The module will include functions to import data from any program that is being used to run the meta analysis. PROPOSED COMMERCIAL APPLICATION: The project will produce a computer program that allows researchers to assess the potential impact of publication bias on a meta analysis. This program will have wide application in the fields of mental health research, gerontology, AIDS research, and cancer research as well as the social sciences. It will be distributed by Biostat, SPSS and by Lawrence Erlbaum Associates.

Grant: 4R44AG021360-02

Program Director: STAHL, SIDNEY M.

Principal Investigator: BORENSTEIN, MICHAEL T PHD GEN/EXP
PSYCH:GEN/EXPER PSYCHOL-
UNSPEC

Title: Combining data types in meta analysis

Institution: BIOSTATISTICAL PROGRAMMING, INC. ENGLEWOOD, NJ

Project Period: 2002/09/30-2005/08/31

DESCRIPTION (provided by applicant): Over the past decade, meta analysis has come to play a key role in setting policy and also in planning new research. In gerontology, recent meta analyses have led to treatment recommendations or new insights in such areas as memory loss with normal aging, identifying, predicting, and treating Alzheimer's disease and dementia, depression in the elderly, perceptions of the elderly, disease prevention in the elderly, bone density loss and hip fractures, stroke, heart disease and aneurysms, and Parkinson's Disease, among many others. Under an earlier SBIR project, we developed a program for meta analysis. This program, Comprehensive Meta Analysis, is widely recognized as an exceptionally important resource for meta analysis. It is currently used by many government agencies, including the FDA and CDC, many of the major pharmaceutical companies, as well as thousands of universities, medical schools, and research organizations. In the current project, we will expand the program in four ways: We will add the ability to work with new classes of data, to accept data in additional formats, to display analyses using additional indices of effect size, and to include more than one class of data in the same analysis.

Grant: 5R44AG019117-03
Program Director: PATMIOS, GEORGEANNE
Principal Investigator: COTTERMAN, ROBERT F PHD
Title: NATIONAL LONG TERM CARE SURVEY DOCUMENTATION & EXTRACTIO
Institution: UNICON RESEARCH CORPORATION COLLEGE STATION, TX
Project Period: 2000/09/30-2004/02/28

The National Long Term Care Survey (NLTCS) contains unique longitudinal microdata on persons aged 65 and older who are chronically impaired. The public-use files distributed by Duke University. Center for Demographic Studies (CDS), have the additional benefit that they are linked to Medicare data available to authorized researchers from the Health Care financing Administration (HCFA) and include corrected weights and other variables calculated by CDS. This project will provide improved access to these data through convenient search and extraction software and an efficient graphical user interface, reformatted documentation that consolidates in one place all information related to a particular variable, and additional variables representing useful combinations of original variables. The software will be distributed on CD-ROMs and run on PCs under Windows 95, 98 NT, and 2000. In Phase I. tests and analyses will be conducted to determine optimum formats for the data files to be placed on the CD-ROMs and the output files. After consultations with CDS that will provide a full understanding of the survey instruments and linked Medicare files, as well as the experience of existing users. we will define the software functions and the layout of the documentation to be produced in Phase II. PROPOSED COMMERCIAL APPLICATION: The National Long Term Care Survey (NLTCS) contains unique longitudinal microdata on persons aged 65 and older who are chronically impaired. The utilities to be developed under this project will provide greatly improved access to these data. Organizations serving the aged and impaired, such as hospitals, HMOs, insurers. actuarial firms, and pharmaceutical companies, may use these data, as may policy makers and researchers with an interest in health care, aging, and related issues.

Grant: 2R44AG019528-02
Program Director: STAHL, SIDNEY M.
Principal Investigator: FLAX, STEPHEN W PHD
Title: Managing Diabetes: Use of a Digital Intercom System
Institution: FLEXTech SYSTEMS, INC. BROOKFIELD, WI
Project Period: 2001/09/30-2005/07/31

DESCRIPTION (provided by applicant): The long-term objective of this project is to develop a new and novel medical monitoring device aimed at benefiting a large class of diabetic individuals. The new device is being called an "Assisted Self- Management Monitor." There are many diseases, such as diabetes, which are considered "self-managed" diseases. With diabetes, it is expected that patients measure and monitor their own blood glucose levels, their own medication administration, and their own diet and exercise programs. When patients properly and actively manage their own disease, they will minimize the disease progression. Otherwise, the effects can be tragic in terms of disease progression and health care costs. Mismanaged diabetes will eventually put the patient at risk for coronary artery disease, stroke, kidney failure, blindness, and peripheral vascular disease. Furthermore, there is often a significant time lag between when a patient collects self-care information and when a medical staff is made aware of that information. The new device underdevelopment is designed to actually monitor and evaluate how well patients are self-managing their disease, and then provide feedback to the care staff and the patient when irregularities are detected. Initially, the system is intended to help diabetic patients living in an assisted living setting. The new device will automatically transfer a patient's glucose reading and medication usage information from his or her quarters to a central station. There, the information will be compared to a personal profile that has been developed for each individual patient. When something of concern is detected, the monitor will notify the care staff with an appropriate message on a computer screen. However, the resident will also be notified with a prerecorded voice message that pertains to the given condition.

Grant: 5R44AG019088-03
Program Director: STAHL, SIDNEY M.
Principal Investigator: FOX, DEBRA MA
Title: Web-based Training for Families of Longterm Care
Institution: FOX LEARNING SYSTEMS, INC. BRIDGEVILLE, PA
Project Period: 2001/04/21-2004/12/31

DESCRIPTION (provided by applicant): For the families of nursing homes residents, remaining constructively involved in the care of the resident is a challenge. Family access to clinical and administrative information is essential to effectively participate with care, yet it is usually not available, or is inadequate. Channels of communication between families and facility caregivers are poorly defined. The proposed Phase II study will complete a curriculum of clinical, administrative, and legal education for families of nursing home residents in an interactive video format accessible through the Web. It will include a "family orientation" for newly admitted residents, and in addition, a facility-specific "Family Communication Room" will enable families and staff to communicate directly on an ongoing basis. A 12-month randomized trial with four facilities will assess family satisfaction, involvement and complaints as well as resident quality of care and quality of life. The Phase I study successfully completed all stated objectives. Approximately 45-minutes of interactive-video family education on dementia was created in conjunction with family advisors. Eighteen family members who completed the program showed enhanced knowledge on pre-post tests ($t = 5.9$, $p < 0.0001$) and reported high levels of satisfaction. The Phase I family advisors were essential to the development of this Phase II proposal. Building on the successful commercialization of a previous product for nursing home staff education, there is a well-defined commercialization plan. Discussions have begun to market this product with a major insurance underwriter servicing the long-term care industry.

Grant: 2R44AG018674-02
Program Director: STAHL, SIDNEY M.
Principal Investigator: IRVINE, A. B PHD
Title: Multimedia Eldercare Support for Family Caregivers
Institution: OREGON CENTER FOR APPLIED SCIENCE EUGENE, OR
Project Period: 2000/09/30-2004/12/31

DESCRIPTION (provided by investigator): This project will develop a worksite-based interactive multimedia program focusing on issues confronting employed family caregivers of older adults. An automated assessment will recommend a "guided tour" of program elements most relevant to the user's personal issues or allow users to browse through the program on their own. Drawing on the models of Rolland and Doka, the program will offer advice to minimize caregiver stress, and it will help users understand care receiver viewpoints. Video vignettes and testimonials will model and promote techniques to maximize effective communication and coping skills. Communication topics will include skills useful for family meetings, conflict resolution, and negotiation, as well as for advocacy with social service agencies, long-term care facilities and the health care system. The program will also offer text-based articles supported by video testimonials, and referrals to local/national resources. Additionally, users will receive a tailored printout summarizing important program elements and other materials of interest. The program will be evaluated in a randomized control trial with 504 employed caregivers. The award-winning Phase I prototype will be marketed as a CD-ROM and in Internet/Intranet format. The Phase II program also will be produced in these formats.

Grant: 1R44AG022799-01
Program Director: ELIAS, JEFFREY W.
Principal Investigator: KEIRN, PHILIP A BS
Title: Development and Evaluation of a Brief UFOV Measure
Institution: VISUAL AWARENESS, INC. CHICAGO, IL
Project Period: 2003/09/01-2004/02/29

DESCRIPTION (provided by applicant): The ability to identify older drivers at risk for either crash involvement or driving cessation has clear societal and health care benefits. Despite technological advances in automotive safety, older adults who are involved in vehicle crashes are more prone to suffer injury or death, and their recovery from injury is much longer. On the other hand, mobility is critical for maintaining social contacts, independent functioning, health, and a satisfying quality of life. Effective methods for extending safe mobility for older adults through early detection of skills impairments followed by intervention could have far reaching impact as more and more adults achieve advanced ages in coming decades. There is abundant evidence now, from many published and replicated studies, that a measure of complex speed of processing, the UFOV(r) test has adequate sensitivity and specificity to identify high-risk older drivers. However, this test is too cumbersome for screening on a mass basis. The focus of the present application is to evaluate the feasibility of developing a very brief (2-3 minute), self-administered screening version of the UFOV(r) test that could be widely used for early detection of high-risk older drivers.

Grant: 5R44AG017426-03
Program Director: STAHL, SIDNEY M.
Principal Investigator: LENARD, MELANIE L BA
Title: Comparative Evaluation of Nursing Homes
Institution: CRYSTAL DECISION SYSTEMS BROOKLINE, MA
Project Period: 1999/09/01-2004/08/31

DESCRIPTION (provided by applicant): The nursing home industry has come under increasing pressure to contain costs and improve quality. We propose to develop a software product that will enable managers of nursing home chains or managers of individual facilities to perform comparative evaluations of the performance of nursing homes. With this product, they will be able to use public data on cost, utilization, and quality to find out how they rate compared to their peers and then set targets for improvement. The software product will be based on Data Envelopment Analysis, a mathematical technique for comparing "decision-making units" using several performance measures. Although Data Envelopment Analysis has been applied to the nursing home industry as a research tool, we propose to make Data Envelopment Analysis an operational tool, accessible to people with little knowledge of the underlying technique. In Phase I, we built a prototype of this product as a spreadsheet add-on and used it to experiment with data from nursing homes in Massachusetts. Based on this experience, we developed a methodology for guiding users through the various steps of the analysis. We propose now to develop a nationwide database of state and federal data on nursing homes along with a full-fledged software product incorporating our methodology.

Grant: 3R44AG019101-02S1
Program Director: STAHL, SIDNEY M.
Principal Investigator: LETZT, ALAN M MS
Title: AccuNurse System
Institution: ADHERENCE TECHNOLOGIES CORPORATION PURCELLVILLE, VA
Project Period: 2001/04/01-2004/08/31

DESCRIPTION (provided by applicant): The AccuNurse System has been successfully developed in Phase I to provide an easy-to-use "mentor" and communications tool for CNAs and nurses in skilled nursing units. Wireless and advanced speech technologies are merged into a conversational system that provides: individualized resident information, paperless documentation at the point of care, and many other features that improve quality of care. The system works as follows: A nurse enters the CNA care plans on a host computer, with simple screens that require mouse clicks. The CNAs and nurses then have wireless access to this information, in spoken form, by wearing a cordless telephone and headset. All they need to do is speak into the headset to (a) access care plan information, (b) report a completed activity, (c) record a clinical note, (d) record weight, vital signs and input/output at the point of care, and (d) locate and speak with another staff member. They also can listen to an incoming scheduled reminder from AccuNurse such as patient repositioning. The overall aim of the Phase 2 study is to establish the commercial viability of an enhanced AccuNurse system in skilled nursing units on all three shifts, 7 days a week. The system will be tested at two continuing care retirement communities for 12 months, by full-time, part-time, and temporary, staff. We plan to enhance the AccuNurse system based on the results of Phase 1, customize the messages to meet each facility's needs, and develop an interface with each facility's information system (including care plans and MDS). The Phase 2 project team includes all the Phase 1 participants plus Kendal Corporation, a leader in elder care with 8 continuing care retirement communities.

Grant: 5R44AG019101-03
Program Director: STAHL, SIDNEY M.
Principal Investigator: LETZT, ALAN M MS
Title: AccuNurse System
Institution: ADHERENCE TECHNOLOGIES CORPORATION PURCELLVILLE, VA
Project Period: 2001/04/01-2004/08/31

DESCRIPTION (provided by applicant): The AccuNurse System has been successfully developed in Phase I to provide an easy-to-use "mentor" and communications tool for CNAs and nurses in skilled nursing units. Wireless and advanced speech technologies are merged into a conversational system that provides: individualized resident information, paperless documentation at the point of care, and many other features that improve quality of care. The system works as follows: A nurse enters the CNA care plans on a host computer, with simple screens that require mouse clicks. The CNAs and nurses then have wireless access to this information, in spoken form, by wearing a cordless telephone and headset. All they need to do is speak into the headset to (a) access care plan information, (b) report a completed activity, (c) record a clinical note, (d) record weight, vital signs and input/output at the point of care, and (d) locate and speak with another staff member. They also can listen to an incoming scheduled reminder from AccuNurse such as patient repositioning. The overall aim of the Phase 2 study is to establish the commercial viability of an enhanced AccuNurse system in skilled nursing units on all three shifts, 7 days a week. The system will be tested at two continuing care retirement communities for 12 months, by full-time, part-time, and temporary, staff. We plan to enhance the AccuNurse system based on the results of Phase 1, customize the messages to meet each facility's needs, and develop an interface with each facility's information system (including care plans and MDS). The Phase 2 project team includes all the Phase 1 participants plus Kendal Corporation, a leader in elder care with 8 continuing care retirement communities.

Grant: 5R44AG014315-03
Program Director: ELIAS, JEFFREY W.
Principal Investigator: MALONE, THOMAS B MA
Title: Activities of Daily Living Enhancement Performance Tool
Institution: CARLOW INTERNATIONAL INC. POTOMAC FALLS, VA
Project Period: 1998/09/01-2004/08/31

DESCRIPTION (provided by applicant): The overall goal of the ADEPT project is to enhance the independence, autonomy, safety, and performance of patients with dementia in conducting activities of daily living (ADL). The overall objective of ADEPT development is to enhance patient care in Special Care Units (SCUs) through the further development and testing of a computerized, self-directed, training tool for Nurse Aides (NAs) which enhances their capacity to provide high quality support to patients in the core ADLs of bathing, dressing, and eating. The underlying philosophy for ADEPT development is to apply the principles and methods of human factors engineering (HFE) to the improvement of care for patients with dementia. The major HFE method to be implemented is task analysis to model patient activities in each ADL, and to identify the requirements associated with successful performance of each task. ADEPT allows caregivers to identify those task performance elements that require assistance and provides recommendations for appropriate intervention strategies. This approach enhances the independence of elders, fostering their ability to maintain/retain functioning to the maximum level at which they are capable or motivated to achieve. Furthermore, the tool provides the health care industry with a method for appropriately training staff to match the capabilities and limitations of the elderly with appropriate care provided by Nurse Aides. The Phase I ADEPT project resulted in the development of a prototype tool that incorporated the dressing ADL. ADEPT-It will build on this by improving the prototype tool, increasing its usability and interactivity by subjecting the tool to usability testing with prospective users, and extending its application by incorporating the eating and bathing ADLs. ADEPT-II will also incorporate an assessment module to rate appropriateness of NA assistive intervention choices during training.

Grant: 5R44AG018240-03
Program Director: ELIAS, JEFFREY W.
Principal Investigator: PRABHU, KRISH PHD
Title: DEVICE FOR MEMORY DYSFUNCTION
Institution: ARIZONA INSTITUTE FOR BIO-MEDICAL RES SCOTTSDALE, AZ
Project Period: 2001/06/15-2005/02/28

Forgetfulness or memory dysfunction occurs more frequently with advancing age, as well as in situations of routine office environments. Routine office tasks like filing are frequently boring tasks, and the forgetfulness problem is exacerbated when an individual with a proclivity to memory dysfunction is working with time constraints and large volumes of materials. We propose to develop a computer based hardware/software solution where it will be possible to tag and locate individual files with precision. PROPOSED COMMERCIAL APPLICATIONS: This research will enable the development of a device that will be capable of precise location of individual files in large buildings. A typical 10-story building may house over a million files.

Grant: 5R44AG016175-03
Program Director: ELIAS, JEFFREY W.
Principal Investigator: RAGER, ROBERT BA
Title: On-Line Web Course Improves Older Persons Memory Skills
Institution: COMPACT DISC, INC. SILVER SPRING, MD
Project Period: 1999/07/01-2004/08/31

DESCRIPTION (provided by applicant): COMPACT proposes research to utilize the Web to deliver a curriculum of highly accessible courses for improving the personal memory skills of able-minded older adults. Conventional classroom memory training is labor intensive, costly and not practical for elderly adults in rural areas or who have limited mobility. For over four years NIA has supported The ACTIVE (for Advanced Cognitive Training for Independent and Vital Elderly) Study to show that group-based cognitive intervention can help reduce disability, delay nursing home placement and improve quality of life in later adulthood. Alternative modes of cognitive intervention for the elderly are needed and can be as effective as in vivo group-based interventions like ACTIVE. The Web is a new mode of distance learning for older adults that promotes social interchange, via E-mail and online Chat, an important concomitant of late life learning and a deterrent to loneliness among the elderly. This study examines the effectiveness of individualized Web memory training via MemoryUniversity.com. As in ACTIVE, we will assess the effect of our cognitive intervention on "proximal" outcome measures directly related to memory performance in everyday life and "distal" measures more strongly associated with hospitalization and need for formal care. Phase II aims: 1) produce Web courses offering a curriculum focused on memory improvement, including background information, strategy training assessment, and practice components; 2) assess the acceptability and functionality of the Web site among older adults; 3) test the efficacy of the courses in changing older adults' knowledge, attitudes, and intended behaviors toward memory enhancement specifically, and quality of life more generally. PROPOSED COMMERCIAL APPLICATION: The On-Line Memory University memory skill training courses is for individuals via the Practical Memory Institute (PMI), and PMI mini-sites at membership organization web sites e.g., Novarti's HealthAndAge.com, AARP.org, SeniorNET.org, ThirdAge.com etc.; 2) to corporate and governmental organizations via license to Global Learning Systems, Inc.; 3) to online seniors at assisted living facilities (e.g., LinkAges.org & Sunrise Assisted Living); 4) to Professional memory trainers via APA's Div 20; and 5) rehabilitation professionals at the VA, Society of Cognitive Rehabilitation, American Speech Language Hearing Assn.

Grant: 2R44AG019543-02
Program Director: STAHL, SIDNEY M.
Principal Investigator: SANFORD, JON A MA
Title: Comprehensive Electronic Database of Home Modifications
Institution: EXTENDED HOME LIVING SERVICES, INC. WHEELING, IL
Project Period: 2001/09/30-2005/06/30

DESCRIPTION (provided by applicant): Modifying one's home is an important strategy to manage chronic health care conditions, increase independence, and ensure safety of frail older adults. However, in many areas of the country the lack of specialists make home modifications difficult to obtain. The purpose of this project is to develop an innovative database that includes both comprehensive search criteria related to functional abilities and the full range of technological and environmental modifications that are necessary to provide individualized solutions. This database will enhance the capacity of rehabilitation and building professionals throughout the country to provide home modification services, particularly to under-served populations. Unlike existing databases, the product developed in this project will provide sufficient information for a broad array of potential providers who might lack detailed knowledge of home modification alternatives, to specify, obtain, install, and construct complete and optimal home modification solutions regardless of the complexity of the situation or the extent of the modifications needed or desired. In Phase 1 a review of existing databases provided the basis for developing the new product. A prototype of the database that includes solutions to the most common environmental barriers encountered by older adults in using the bathroom was developed. The prototype was pretested in 10 homes and found to be highly feasible based on the high degree of concurrence between home modification solutions generated by the database and those recommended by a home modifications specialist. Phase 2 of the project will develop and test instructional materials to accompany the database; complete database development; and demonstrate the effectiveness of the database as a tool that will significantly expand the capacity of local occupational therapists, case managers, and remodelers to provide individualized modifications at reasonable costs even when access to experts is not possible.

Grant: 5R44AG018709-03
Program Director: STAHL, SIDNEY M.
Principal Investigator: SHEEHAN, MARTIN R PHD
Title: Future Planning, Aging Parents Adult Children with DD
Institution: IRIS MEDIA, INC. EUGENE, OR
Project Period: 2000/09/30-2004/08/31

DESCRIPTION (provided by applicant): The overall goal of the proposed project will be to develop, produce, and test a video training program that simplifies the future planning and paces the instruction using the stages of change model. The instructional program is targeted to older parents who have adult children with developmental disabilities living with them. Other users include local Arcs (formerly The Association for Retarded Citizens) and county case management MR/DD (Mental Retardation and Developmental Disabilities) service delivery systems. Instruction will use competency-based strategies that integrate the use of stages of change, social cognitive theory, video instruction, and suggested family activities. The basis for the proposed approach derives from Social Cognitive Theory and the Stages of Motivational Readiness for Change Model. The completed program will consist of a series of five training modules: 1) Building My Lifebook, 2) The Future Planning Process, 3) Gathering information, 4) Putting your plans into action, and 5) Keeping information current. The research component of this project is designed to demonstrate that the Life History Album kit and videos will be used by parents of developmentally disabled adults to begin to produce a Life History Album (LHA) and that after using these materials parents will have advanced along the stages of change towards undertaking and establishing permanency plans for their adult children. We intend to use a two-group (Control/Intervention) pre-posttest design with measurements at multiple (3) time points. We will be testing the effectiveness of the LHA in motivating parents to undertake permanency planning against one of the most common handbooks available on this subject, the Family Handbook on Future Planning produced by the Arc.

Grant: 2R44AG019518-02
Program Director: STAHL, SIDNEY M.
Principal Investigator: STROMBECK, RITA D BA
Title: HIV/AIDS Web-Based Training for Health Care Providers
Institution: HEALTHCARE EDUCATION ASSOCIATES PALM SPRINGS, CA
Project Period: 2001/07/01-2005/02/28

DESCRIPTION (provided by applicant): Healthcare Education Associates (HCEA proposes to develop and evaluate an interactive online Continuing Medical Education (CME) program that will: 1) enhance primary care practitioners (PCPs) ability to prevent, diagnose, and treat HIV/AIDS in adults aged 50 and over; 2) be more effective than traditional CME programs; and 3) be inexpensively marketed to health care practitioners throughout the U.S. The program will be sponsored for 4+ hours of AMA Category 1 Continuing Medical Education (CME) credit and will be marketed by Medical Directions, Inc. (MDI) via its commercial CME website, The Virtual Lecture Hall. The proposed program will be created in the form of a "Virtual Clinic." This model utilizes the interactive capabilities of the computer to achieve educational efficiency and effectiveness by providing realistic simulation of the practice world. The specific aims of Phase II are to: 1) develop an online CME program based on the curriculum written in Phase I; 2) pilot-test the program; and 3) evaluate the effectiveness of the program in meeting the learning objectives. It is proposed that the design for the Phase II Study will include both immediate and six-month follow-up assessments and a comparison of the online CME program to a traditional CME program presented in a written format in terms of the degree of attainment of the learning objectives and subsequent incorporation of content into the ongoing clinical practice.

Grant: 2R44AG018678-02
Program Director: STAHL, SIDNEY M.
Principal Investigator: WALKER, BONNIE L PHD
Title: USING CBT AND THE WEB TO TRAIN BOARD AND CARE STAFF
Institution: HARRINGTON SOFTWARE ASSOCIATES WARRENTON, VA
Project Period: 2000/07/01-2005/03/31

DESCRIPTION (provided by investigator): This research project has two goals. Its primary purpose is to reduce injuries among older people living in board and care facilities by improving opportunities for staff training. This project will also determine the effectiveness of computer-based (CB) instruction as compared to traditional instructor-led training and to investigate the effectiveness of CB training delivered over the Internet. These goals will be achieved through the development and distribution of a comprehensive, validated multimedia injury prevention program designed to meet the training needs of the target population. Eleven injury prevention modules will be delivered in CD-ROM and Web-based formats. The pilot study undertaken in Phase I of this project demonstrated the potential for CB training with board and care staff. In the pilot test of the prototype module, the training significantly improved participant knowledge of fall prevention even though many participants had never previously used a computer. Phase II will expand the research to include a field test and follow-up study with participants in four states. Researchers will also develop and test Web-based versions of the modules. This project can serve as a benchmark for future projects and provide a standard for computer and Web-based training in the board and care industry.

Grant: 5R44AG016554-03
Program Director: STAHL, SIDNEY M.
Principal Investigator: WALLENBERG, BRADFORD G PHD
Title: Multimedia Alzheimer's Education in Assisted Living
Institution: CARETRENDS HEALTH EDUCATION & RES SIOUX FALLS, SD
INST
Project Period: 1999/09/30-2004/07/31

DESCRIPTION (provided by applicant): Assisted Living Facilities (ALF) are the fastest growing means of providing assistance to the elderly with Alzheimer's Dementia (AD), but generally care is provided by untrained, nonprofessional staff. Therefore, the overall, long term goal of our program is to improve the quality of AD care for persons residing in assisted living facilities. In Phase I, the objective of the project was to develop a comprehensive, interactive, multimedia assisted living employee training program on CD-ROM which focused on one aspect of AD, "Enhancing Communication." In Phase II, the series of AD modules will be completed. The specific aims for expansion of the CD-ROM based training program will include: 1) develop the comprehensive training program by completing five additional AD related modules; 2) develop accompanying written materials; 3) evaluate the effectiveness of the CD-ROMs based on the knowledge testing provided to assisted living caregivers; 4) develop the marketing and commercialization plan. By the end of Phase II, we will have completed the development, production, and commercialization training program encompassing AD care provided by assisted living caregivers. PROPOSED COMMERCIAL APPLICATIONS: The number of assisted living beds in the United States is estimated to be 1.4 million. As the assisted living industry continues to grow, the number of caregivers will also increase to maintain adequate quality of care. With the increased training needs of assisted living caregivers and the increase in state regulation, the marketing/commercial potential for computer-based training will be vast.